

Declaration under 37 C.F.R § 1.132 OF Dr. Frank Meulewaeter, Ph.D.

In re application of:

Application No: 09/551,494

Filed: April 18, 2000

For: METHODS AND MEANS FOR DELIVERING INHIBITORY RNA TO PLANTS
AND APPLICATIONS THEREOF

I, Frank Meulewaeter, Ph.D. being duly warned that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. § 1001), and may jeopardize the validity of the patent application or any patent issuing thereon, state and declare as follows:

1. All statements herein made of my own knowledge are true, and statements made on information or belief are believed to be true and correct.
2. I graduated from University of Gent as an Agricultural engineer in 1986. In 1992, I graduated from University of Gent with a Ph.D. degree in Applied Biology. I have published more than 12 scientific papers on the subject of plant biology. A copy of my curriculum vitae is attached hereto as Exhibit A.
3. I am currently a Senior Scientist at Bayer CropScience in Belgium. I have been in this position for 6 years.
4. I have been working in the field of plant virology for 17 years.
5. I declare that "satellites" of plant viruses are sub-viral agents composed of nucleic acid molecules that depend for their productive multiplication on co-infection of a host cell with a helper virus.
6. When a satellite encodes the coat protein in which its nucleic acid (DNA or RNA) is encapsidated it is referred to as a "satellite virus". The RNA or DNA of a satellite virus is, thus, not encapsidated in the same particle as the helper virus genome.
7. Another type of satellite are so-called 'satellite RNAs' or 'satellite DNAs' of a plant virus. These are RNA or DNA molecules, which do not encode a coat protein and are encapsidated within the particles of a helper virus, i.e. together with the helper virus genome.
8. CMV is not a satellite virus, but an autonomous plant virus, which may carry satellite RNA molecules within its particles. In contrast, STMV and STNV are satellite viruses, i.e. their RNA is contained in separate particles and is not found together in one particle with the genome of the helper virus.

9. In conformity with the definitions above, the expression "satellite RNA of a plant virus" refers to 'satellite RNA' and not to the RNA of a 'satellite virus'.
10. In conclusion, satellite RNAs and satellite viruses are two very different types of satellites, which are clearly distinguished from each other.
11. I have read and understood Masuta et al. and declare that this publication only suggests to use satellite RNAs, and not satellite RNA viruses, as vectors.

Signed on 12 December 2002

By 
Dr. Frank Meulewaeter

Exhibit A:**CURRICULUM VITAE**

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Date of birth: 16/08/1963
Place of birth: Lokeren (Belgium)

EDUCATION :

- 1986 Agricultural engineer : Universiteit Gent
 Thesis: "dsRNA analysis for the detection of plant viruses"
1992 Ph.D.: Laboratorium voor Genetica, Universiteit Gent
 Thesis : "Molecular characterization of tobacco necrosis virus"

PROFESSIONAL EXPERIENCE :**Present occupation (since 1996):**

Senior Scientist at Bayer BioScience N.V., Gent, Belgium.

Previous occupations :

- 1993-1996 : IWT-post-doctoral fellow at Plant Genetic Systems N.V. and Laboratorium voor Genetica, Gent, Belgium.
- 1992-1993 : Scientist at Plant Genetic Systems N.V. , Gent, Belgium.
- 1988-1992 : Ph.D. research as a Research Assistant of the National Fund for Scientific Research (Belgium) at the Laboratorium voor Genetica, Universiteit Gent, Belgium.
- 1986-1988 : Scientific assistant at Plant Genetic Systems N.V., Gent, Belgium.

MOST RELEVANT PUBLICATIONS :

GOSSELÉ, V., FACHÉ, I., MEULEWAETER, F., CORNELISSEN, M., and METZLAFF, M. (2002). SVISS – a novel transient gene silencing system for gene function discovery and validation in tobacco plants. *The Plant Journal* **32**, in press.

VAN LIPZIG, R., GULTYAEV, A.P., PLEIJ, C.W., VAN MONTAGU, M., CORNELISSEN, M., and MEULEWAETER, F. (2002). The 5' and 3' extremities of the satellite tobacco necrosis

virus translational enhancer domain contribute differentially to stimulation of translation. *RNA* **8**, 229-236.

VAN LIPZIG, R., VAN MONTAGU, M., CORNELISSEN, M., and MEULEWAETER, F. (2001). Functionality of the STNV translational enhancer domain correlates with affinity for two wheat germ factors. *Nucleic Acids Res.* **29**, 1080-1086.

MEULEWAETER, F. (1999). Necroviruses (*Tombusviridae*). In "Encyclopedia of Virology, Second Edition" (R.G. Webster and A. Granoff, Eds.). pp. 1003-1007. Academic Press Ltd, London.

MEULEWAETER, F., VAN MONTAGU, M., and CORNELISSEN, M. (1998). Features of the autonomous function of the translational enhancer domain of satellite tobacco necrosis virus. *RNA* **4**, 1347-1356.

MEULEWAETER, F., DANTHINNE, X., VAN MONTAGU, M., and CORNELISSEN, M. (1998). 5'- and 3'-sequences of satellite tobacco necrosis virus RNA promoting translation in tobacco. *The Plant Journal* **14**, 169-176.

ANDRIESSEN, M., MEULEWAETER, F., and CORNELISSEN, M. (1995). Expression of tobacco necrosis virus open reading frames 1 and 2 is sufficient for the replication of satellite tobacco necrosis virus. *Virology* **212**, 222-224.

MEULEWAETER, F., DANTHINNE, X. and VAN EMMELO, J. (1994). Necroviruses. In "Encyclopedia of Virology" (R.G. Webster and A. Granoff, Eds.). pp. 896-901. Saunders, London.

DANTHINNE, X., SEURINCK, J., MEULEWAETER, F., VAN MONTAGU, M., and CORNELISSEN, M. (1993). The 3' untranslated region of satellite tobacco necrosis virus RNA stimulates translation *in vitro*. *Molecular and Cellular Biology* **13**, 3340-3349.

MEULEWAETER, F., DANTHINNE, X., COUTTS, R., and VAN EMMELO, J. (1993). Specificity of satellite activation by tobacco necrosis virus correlates with nucleic acid hybridization pattern between helper virus isolates. *Virology* **193**, 971-973.

MEULEWAETER, F., CORNELISSEN, M., and VAN EMMELO, J. (1992). Subgenomic RNAs mediate expression of cistrons located internally on the genomic RNA of tobacco necrosis virus strain A. *Journal of Virology* **66**, 6419-6428.

MEULEWAETER, F., SEURINCK, J., and VAN EMMELO, J. (1990). Genome structure of tobacco necrosis virus strain A. *Virology* **177**, 699-709.

MEMBERSHIPS :

- Dutch Society of Plant Virology
- International Working Group on Plant Viruses with Fungal Vectors
- Tombusviridae study group of the Plant Virus Subcommittee of the ITCV

References cited in draft Office Action reply FKOSAT-US2 (19 Dec 2002)
[cited before]

1. Simon, PMB Reporter Vol 6(4), 1988, pp240-252
2. Qiu and Scholthof, J. of Virology, 2001, pp5429-5432
3. [Kumagai, 1995, PNAS Vol 92, pp1679-1683]
4. Mirkov et al, 1990, Virology 179, 395-402
5. Routh et al 1995, Virology 212, pp121-127
6. [Ruiz et al 1998, The Plant Cell 10, pp937-946]
7. Lindbo et al. 2001, Current Opinion Biology 4:181-185
8. Baulcombe 1999, Current Opinion Biology 2:109-113
9. Donson et al 1991, PNAS 88, 7204-7208
10. Joshi and Joshi 1991, Febs Letter 281 N°1,2 pp1-8
11. Fernando-Garcia Arenal 2001, Annual Review Phytopathology 39:157-186
12. Kurath and Dodds 1995, RNA 1:491-500
13. Kurath, Ray and Dodds 1993, J General Virology 74:1233-1243
14. Kurath, Heik and Dodds 1993, Virology 194: 414-418
15. Kearney et al. 1993, Virology 192:11-17
16. Rodriguez-Cerezo and Garcia-Arenal, 1989, Virology 170:418-423